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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,130	02/19/2004	Pranabes K. Pramanik	OM-11	5237

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EXAMINER

KRUER, KEVIN R

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,130

Applicant(s)

PRAMANIK, PRANABES K.

Examiner

Kevin R. Kruer

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 17 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15, 18-42, 44, and 47 is/are pending in the application.
- 4a) Of the above claim(s) 34-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15, 18-33, 37-42, 44 and 47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 34-36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on November 17, 2005.
2. Applicant's election with traverse of Group I in the reply filed on 11/17/2005 is acknowledged. The traversal is on the ground(s) that there is no showing of distinctness and a failure to demonstrate examining both groups would be an undue burden on the examiner. This is not found persuasive because distinctness was shown in the restriction requirement. Specifically, the product of Group I could be made by a materially different process than the process claimed in Group II. For example, the product could be made by applying the central layer to the first and second thermosetting polymers, then applying the electrically conductive layers. The search for Group II would include classes/subclasses that would not be searched for Group I. Keeping the Groups together would be an undue burden on the examiner. The requirement is still deemed proper and is therefore made FINAL.
3. This application contains claims 34-36 which are drawn to an invention nonelected with traverse in Paper No. 11/17/2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-13, 15, 18-33, 37-42, 44, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Appelt et al (US 2001/0005394A1) in view of Fenoglio et al (US 5,003,037).

Appelt teaches a capacitive element for a circuit board having improved capacitance. The structure is formed from a pair of conductive sheets having dielectric compound laminated therebetween. The dielectric component is formed of two or more dielectric sheets at least one of which is partially cured or softened followed by being fully cured or hardened. The lamination takes place by laminating a partially cured or softened sheet to at least one other sheet of dielectric material and one of the sheets of conductive material. The total thickness of the dielectric component does not exceed 4mil and preferably does not exceed 3mil (abstract) and the thickness of a single dielectric sheet does not exceed 2mils, preferably no more than 1.5mil (abstract). Said thickness teachings are herein understood to be sufficiently specific to read on the claimed thicknesses of claims 18-23.

In one embodiment, a sheet of polyimide is coated on each side with a layer of epoxy to form a dielectric component (paragraph 0028). Said layers may comprise a filler such as barium titanate in order to increase its dielectric constant (0030). The conductive layers may comprise copper (0028). Said capacitor has a capacitance of at least 500 pico farads per square inch (0029).

Appelt does not teach that the core layer should comprise a polyamide-imide. However, Fenoglio teaches a polyamide-imide that has a high Tg (preferably above 300C), excellent thermal stability, lower density and lower moisture uptake and is useful in the electronic industry as an interlevel dielectric for capacitors (abstract). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the polyamide-imide taught in Fenoglio in place of the polyimide core layer taught in Appelt. The motivation for doing so would have been that said polymer has a high Tg, excellent thermal stability, lower density, and lower moisture uptake.

With respect to claims 8, 9, and 25, Appelt teaches that the dielectric layers may comprise a filler material in order to control the dielectric component of the capacitor, but does not teach the amount of filler that should be added. However, the courts have held it is not inventive to discover the optimum or workable range by routine experimentation when the general conditions of the claimed invention are disclosed in the prior art (See MPEP 2141.05). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the amount of filler added to the dielectric component of the capacitor. The motivation for doing so would have been to optimize the dielectric constant of the dielectric component.

With regard to claim 26, Appelt does not teach the epoxy should have a Tg of at least 180C. However, Fenoglio teaches it is desirable for the dielectrics of capacitors to have a high Tg (see background of the invention). Thus, it would have been obvious to utilize an epoxy with a high Tg as the thermosetting resin taught in Appelt. The motivation for doing so is that such polymers are preferable for use in capacitors.

Alternatively, since epoxy is taught to be a thermosetting composition, it is understood to inherently meet the limitation of claim 26.

Response to Arguments

Applicant's arguments filed November 17, 2005 have been fully considered but they are not persuasive.

Applicant argues Appelt fails to teach the five layered structure of the present invention which includes a central polymerizable layer comprising a polymerizable precursor of polyethylene terephthalate, a polyethylene naphthalate, a polyvinyl carbazole, a polyphenylene sulfide, an aromatic polyamide, a polyether-nitrile, a polyether-ether ketone, or combinations thereof. The examiner agrees but notes Appelt is not relied upon for such a teaching. Rather, Fenoglio is relied upon to teach a polyamide-imide which is herein understood to read on the claimed aromatic polyamide. As noted by applicant, a polyamide-imide reads on a polyamide layer (see top of page 12 of the response mailed 11/17/2005). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The examiner further notes that applicant admits that Fig 5b shows a five-layer structure.

With respect to Fenoglio, Applicant argues the reference does nothing more than describe the formation of polymeric materials and does not describe the use of these materials in multi-layer structures or suggest how one of ordinary skill in the art would

modify Appelt to devise the presently claimed invention. The examiner respectfully disagrees. Fenoglio teaches the polymers have use as interlevel dielectric materials for capacitors (abstract). Thus, the examiner maintains there is ample teaching to motivate one of ordinary skill to utilize the polymers of Fenoglio as the dielectric layer of the laminate taught in Appelt.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin R. Kruer
Patent Examiner-Art Unit 1773